

**Notice of Allowability**

Application No.

09/701,201

Examiner

Jenise E. Jackson

Applicant(s)

FRIEDMAN ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/18/2005.
2. ☒ The allowed claim(s) is/are 2-5, 10-15, 17-20, 25-30, 33-38.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

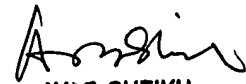
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_



**AYAZ SHEIKH**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2100**

***Reasons For Allowance***

1. ***Status of Claims:*** Claims 1, 6-9, 16, 21-24, and 31-32 have been canceled by Applicant. Claims, 2-5, 10-15, 17-20, 25-30, 33-38 remain. The Examiner previously indicated the allowability of claims 33-36, in previous office action dated 7/13/2005. The Applicant has added claims 37-38, which recite similar limitations as previously allowed in claims 33-36. The reasons Claims 2-5, 10-15, 17-20, 25-30, and 33-38 are allowable are listed below:

2. In the prior art of security kernel and utility, prior art fails to disclose or suggest, “if the first device driver is not functionally uppermost in the layered plurality of device drivers, denying the I/O request in the first device driver, and allowing the I/O request to be performed by a next lower-level device driver in the layered plurality of device drivers, and determining whether the first device driver has been previously called”. An example of prior art in the security kernel and utility that fails to disclose or suggest the claim limitations, “if the first device driver is not functionally uppermost in the layered plurality of device drivers, denying the I/O request in the first device driver, and allowing the I/O request to be performed by a next lower-level device driver in the layered plurality of device drivers, and determining whether the first device driver has been previously called”, is Cabrera does not detect the position of a device driver relative to other device drivers in a stack. Cabrera discloses an I/O request is merely passed to a first driver means for performing I/O processing. Cabrera does not disclose or suggest determining whether a first device driver is functionally uppermost in a layered plurality of device drivers. In Cabrera that I/O request is passed from device driver 1 to device driver 2, etc. for every I/O request passed to the a driver is a sequential process, not determining the

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position of a device driver within the device drivers as claimed. Second, Cabrera discloses that certain drivers can process the I/O request. In contrast to prior art, in security kernel and utility and more specifically Cabrera does not disclose if the first device driver is functionally uppermost in the layered plurality of device drivers, denying the I/O request in the first device driver, and allowing the I/O request to be performed by a next lower-level device driver.

3. In the prior art of networking, prior art fails to disclose or suggest, “if the first device driver is not functionally uppermost in the layered plurality of device drivers, denying the I/O request in the first device driver, and allowing the I/O request to be performed by a next lower-level device driver in the layered plurality of device drivers, and determining whether the first device driver has been previously called”. An example of prior art in the security kernel and utility that fails to disclose or suggest the claim limitations, “if the first device driver is not functionally uppermost in the layered plurality of device drivers, denying the I/O request in the first device driver, and allowing the I/O request to be performed by a next lower-level device driver in the layered plurality of device drivers, and determining whether the first device driver has been previously called”, is Shaath et al. Shaath et al. discloses when the IRP, the physical device driver checks its IO stack location to determine what operation it should carry out on the target device. Shaath discloses that each driver in the stack has a specific function; however, this is in contrast to the claim limitations of if the first device driver is not functionally uppermost in the layered plurality of device drivers, denying the I/O request in the first device driver, and allowing the I/O request to be performed by a next lower-level device driver in the layered plurality of device drivers, and determining whether the first device driver has been previously called”, prior art fails to disclose or suggest this, specifically Shaath fails to disclose or suggest a

determination of the driver position, and if the driver is not uppermost than the request is denied, and performed by a lower level driver.

4. In the prior art of security, prior art fails to disclose or suggest, “if the first device driver is not functionally uppermost in the layered plurality of device driver denying the I/O request in the first device driver by setting a first device driver shutdown flag and initiating a re-hook process; the re-hook process, checking the number of times the re-hook process has been initiated, checking whether the number of times has reached a predetermined maximum threshold”. An example of prior art in security that fails to disclose or suggest, “if the first device driver is not functionally uppermost in the layered plurality of device driver denying the I/O request in the first device driver by setting a first device driver shutdown flag and initiating a re-hook process; the re-hook process, checking the number of times the re-hook process has been initiated, checking whether the number of times has reached a predetermined maximum threshold”, is Jones. Jones discloses when a host request is received, the request is populated and enqueued on the first level queue. The first layer device driver executing on the disk controller then determines if the enqueued request is atomic, if the request maps unmodified to the next lower level driver layer. If not, then the disk controller manipulates the request into one or more atomic requests, allocates the requests, and populates the requests for the next driver layer. However, Jones fails to disclose or suggest, if the first device driver is not functionally uppermost in the layered plurality of device driver denying the I/O request in the first device driver by setting a first device driver shutdown flag and initiating a re-hook process; the re-hook process, checking the number of times the re-hook process has been initiated, checking whether the number of times has reached a predetermined maximum threshold”.

5. In the prior art of input/output processing, prior art fails to disclose or suggest, “if the first device driver has been previously called, detecting a second calling module address, comparing the second calling module address to the initial calling module address, and concluding that the first device driver is functionally uppermost in the layered plurality of device drivers only if the initial calling module address matches the second calling module address”. An example of prior art in input/output processing, that fails to disclose or suggest, “if the first device driver has been previously called, detecting a second calling module address, comparing the second calling module address to the initial calling module address, and concluding that the first device driver is functionally uppermost in the layered plurality of device drivers only if the initial calling module address matches the second calling module address”, is Tsang et al. Tsang et al. discloses when accessing a device, a top layer component driver of the device driver is first invoked. Tsang discloses each component driver performs its function and potentially invokes a next lower layer component driver down to a bottom layer component driver. Tsang et al. discloses that drivers are in a particular order and called in a particular sequence in the stack high to the lowest in the stack. There is no suggestion or disclosure of, “if the first device driver has been previously called, detecting a second calling module address, comparing the second calling module address to the initial calling module address, and concluding that the first device driver is functionally uppermost in the layered plurality of device drivers only if the initial calling module address matches the second calling module address”. The order of the device drivers is predetermined, there is no determination of what order the device drivers are in.

6. In non-patent literature fails to teach or suggest, “if the first device driver is not functionally uppermost in the layered plurality of device drivers, denying the I/O request in the

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first device driver, and allowing the I/O request to be performed by a next lower-level device driver in the layered plurality of device drivers, and determining whether the first device driver has been previously called”. An example of non-patent literature that fails to teach or suggest, if the first device driver is not functionally uppermost in the layered plurality of device drivers, denying the I/O request in the first device driver, and allowing the I/O request to be performed by a next lower-level device driver in the layered plurality of device drivers, and determining whether the first device driver has been previously called”, is Parker. Parker teaches interrupts are usually handled by the device driver, Parker fails to teach or suggest, if the first device driver is not functionally uppermost in the layered plurality of device drivers, denying the I/O request in the first device driver, and allowing the I/O request to be performed by a next lower-level device driver in the layered plurality of device drivers, and determining whether the first device driver has been previously called”.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jenise E. Jackson whose telephone number is (571) 272-3791. The examiner can normally be reached on M-Th (6:00 a.m. - 3:30 p.m.) alternate Friday's.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



October 26, 2005



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